

IN THE CLAIMS

This listing of the claim will replace all prior versions and listings of claim in the present application.

Listing of Claims

1. (currently amended)An information providing method on a communication network including a server for providing information service, a gateway apparatus and a mobile packet communication network accommodating a plurality of mobile terminals ~~terminal~~ and including a service management node for managing visit location information of the mobile terminal in the mobile packet communication network, via a radio channel and an IP (Internet Protocol) core network to which a server for providing information service is connected, said mobile packet communication network and the IP core network being connected via a ~~the~~ gateway apparatus being capable of communicating with said mobile terminal, said server and said service management node, the method comprising the steps of:

making a request to set management information from a said service management node ~~for managing visit location information of each mobile terminal in said mobile packet communication network to said gateway apparatus to set management information for providing information service to a mobile terminal, in an execution process of a procedure for accommodating the mobile terminal to said mobile packet communication network; and~~

registering management information including a service identifier of information service regarding said mobile terminal into a management table by said gateway apparatus in response to reception of said ~~setting request;~~

checking whether a service request has been issued to ~~a service provider~~
said server with respect to the information service indicated by a~~corresponding to the~~
service identifier included as a part of said management information~~by said gateway;~~
and;

making a the service request, if the service request has not been issued, by
said gateway apparatus to ~~a specific~~said server in ~~said IP core network as said~~
~~service provider to start the information service if a service request has not been~~
issued.

2. (currently amended)An information providing method according to
claim 1, wherein said service management node requests said gateway apparatus to
set setting of~~said management information~~ designating at least an address of said
mobile terminal and ~~an the~~ identifier of information service to be provided, and

said gateway apparatus registers said management information including the
information designated by said ~~setting~~ request and attribute information regarding
said mobile terminal obtained from other server, into said management table.

3. (currently amended)An information providing method according to
claim 1, wherein when a packet including service information is received from said
~~specific server~~, said gateway apparatus refers to said management table and
transfers said received packet to said mobile packet communication network by
using the address of said mobile terminal registered as a part of the management
information as a destination.

4. (currently amended)An information providing method according to claim 1, wherein said gateway apparatus has: a first management table for storing, in correspondence with each service identifier, an address of a said server ~~operating as a provider of service~~, a destination address ~~to be attached to a service information packet~~, and status information indicative of whether a the service request has been issued or not; and a second management table for storing management information regarding said mobile terminal ~~is registered~~, and

when a packet including the service information is received from said specific server, said gateway apparatus specifies a service identifier corresponding to said received packet with reference to said first management table, searches said second management table for a management information record including said service identifier to thereby specify an address of a the mobile terminal to which said received packet is to be transferred, and transfers said received packet or a duplicate of said received packet to ~~said~~ the address of the mobile terminal.

5. (currently amended)An information providing method according to claim 4, wherein a filtering condition is designated in correspondence with a specific service identifier in said first management table, and

when a packet including service information is received from said specific server, in the case where a filtering condition is designated in correspondence with a the service identifier ~~specified in said first management table~~, said gateway apparatus uses an the address of a the mobile terminal ~~of which management~~

~~information satisfies said filtering condition among addresses of mobile terminals specified in said second management table as a destination of said received packet, if the management information of the mobile terminal satisfies said filtering condition.~~

6. (currently amended)An information providing method according to claim 4, wherein said second management table permits registration of a plurality of service identifiers with respect to ~~a single~~the mobile terminal.

7. (currently amended)An information providing method according to claim 3, wherein said gateway apparatus converts ~~a~~the destination address of ~~a~~the packet received from said ~~specific~~ server from a global IP address to a local IP address, and transfers the resultant to said mobile packet communication network.

8. (currently amended)An information providing method on a communication network including a server for providing information service, a gateway apparatus and a mobile packet communication network accommodating a plurality of mobile terminals ~~terminal~~ and including a service management node for managing visit location information of the mobile terminal in the mobile packet communication network, via a radio channel and an IP (Internet Protocol) core network to which a server for providing information service is connected, said mobile packet communication network and the IP core network being connected via a ~~said gateway apparatus being communicable with said mobile terminal, said server and said service management node,~~ the method comprising the steps of:

making a request to set management information from a said service
management node for ~~managing a visit location of each mobile terminal in said~~
~~mobile packet communication network to said gateway apparatus to set~~
~~management information for providing information service to a mobile terminal by~~
designating a mobile terminal address and an information service identifier at the
time of registering location of the mobile terminal in said mobile packet
communication network; and

registering the management information regarding said mobile terminal into a
management table by said gateway apparatus having received said setting-request;

checking by said gateway apparatus whether a service request has been
issued to ~~a service provider~~ said server with respect to information service to be
provided to said mobile terminal; and

when the service request has not been made, making a the request by said
gateway apparatus to a specific said server as said service provider to start the
information service ~~when a service request has not been made.~~

9. (currently amended) An information providing method according to
claim 8, wherein when said gateway apparatus registers the management
information regarding a the mobile terminal into a management table, location
information obtained from a location information server for managing geographical
local information of each the mobile terminal in said mobile packet communication
network is registered as a part of the management information into said
management table, and

when a packet designating a delivery area as ~~information service~~ is received from said ~~specific server~~, said gateway apparatus refers to said management table to select an address of a terminal to which said received packet is to be delivered among a group of mobile terminals of which present location is in said designated area, and transfers said received packet to said mobile packet communication network by using said address as a destination address.

10. (currently amended) ~~A gateway apparatus for connecting~~ communicable with a server for providing information service and a mobile packet communication network accommodating a plurality of mobile terminals ~~terminal and including a service management node for managing visit location information of the mobile terminal in the mobile packet communication network via a radio channel, and an IP (Internet Protocol) core network to which a server for providing information service is connected, comprising:~~

~~means for registering management information regarding said mobile terminal into a management table when a setting request of the management information for information service to said mobile terminal is received from a~~ said service management node for managing a visit location of the mobile terminal in said mobile packet communication network, and if a service request of information service for said mobile terminal has not been made to a ~~service providers~~ said server, requesting a ~~specific~~ said server as ~~said service provider~~ to start the information service; and

packet transferring means for specifying, when a packet including service information is received from said ~~specific server~~, an address of a mobile terminal, to

which information service ~~by~~with said received packet is to be provided, based on said management table and transferring said received packet to said mobile packet communication network by using the address as a destination address.

11. (currently amended)A gateway apparatus according to claim 10, wherein said packet transferring means includes means for receiving a packet including said service information in a multicast packet format from said ~~specific~~ server and transferring the packet in a unicast packet format to a ~~a~~the mobile terminal specified by said management table.

12. (currently amended)A gateway apparatus according to claim 10, wherein said packet transferring means includes means for converting a destination address of a packet received from said ~~specific~~ server from a global IP address to a private IP address, and transferring the resultant packet to said mobile packet communication network.

13. (currently amended)A gateway apparatus according to claim 10, further comprising:

a first management table for storing, in correspondence with a service identifier, an address of a ~~a~~the server ~~as a provider of service~~ for providing information service, ~~a destination address to be attached to a service information packet,~~ and status information indicative of whether ~~a service~~the request for the information service has been issued or not; and

a second management table for storing management information regarding said mobile terminal, and

wherein when a packet including the service information is received from said specific-server, said ~~received packet-transferring~~ means specifies a service identifier corresponding to said received packet with reference to said first management table, searches said second management table for a management information record including said service identifier to thereby specify an address of a mobile terminal to which said received packet is to be transferred, and transfers said received packet or a duplicate of said received packet to said mobile terminal address.